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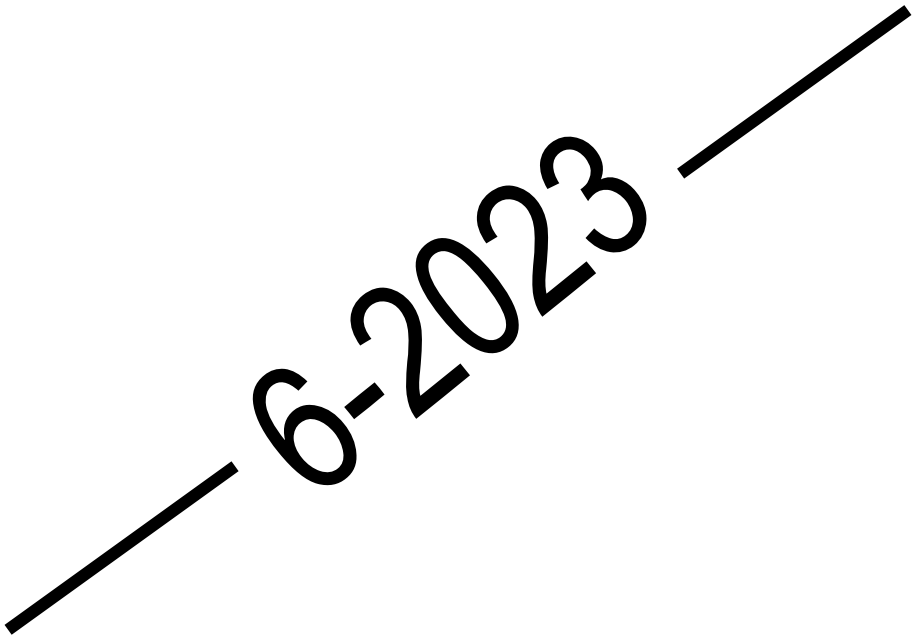

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CHEMICAL COMPOSITION “OF JUGLANS REGIA L” PLANT AND SIGNIFICANCE IN FOLK MEDICINE

ЗНАЧЕНИЕ ХИМИЧЕСКОГО СОСТАВ РАСТЕНИЯ “JUGLANS REGIA L” В НАРОДНОЙ МЕДИЦИНЕ

“JUGLANS REGIA L” O‘SIMLIGINING KIMYOVIY TARKIBI VA XALQ TABOBATIDAGI AHAMIYATI

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Abstract

This article analyzes the botanical and biological properties of the walnut Juglans regia L growing in the Fergana Valley, the medicinal properties of plant leaves, i.e. their role in folk medicine. The main focus is on the study of the chemical composition of the leaves of Juglans regia L., especially the content of water-soluble vitamins and their importance in the treatment of certain diseases in the human body, and the amount of vitamins in the leaves of the plant was determined by high performance liquid chromatography.

Аннотация

В данной статье анализируются ботанические, биологические и лечебные свойства, а также роль в народной медицине растения Juglans regia L (Греческих орех), произрастающего в Ферганской долине. Основное внимание было уделено изучению химического состава, особенно, содержание водорастворимых витаминов и их значение в лечении некоторых заболеваний человека и методом ВЭЖХ был проведен количественный анализ витаминов.

Annotatsiya

Mazkur maqolada Farg’ona vodiysida o’sadigan grek yong’og’i Juglans regia L o’simligining botanik va biologik xususiyatlari, o’simlik barglarining dorivorligi, ya’ni xalq tabobatidagi o’rni taxlil qilingan. Asosiy e’tibor Juglans regia L. o’simligi barglarining kimyoviy tarkibini o’rganishga, ayniqsa, suvda eruvchi vitaminlar tarkibi va odam organizmida uchraydigan ayrim kasalliklarni davolashdagi ahamiyatiga qaratilgan va o‘simlik bargi tarkibidagi vitaminlar miqdori YuSSX usulida aniqlangan.

Kalit so‘zlar*: Juglans regia L, avitaminoz, gipovitaminoz, immunitet, kolit, antiseptik, antioksidant, allergiya, ateroskleroz.*

Ключевые слова: *Juglans regia L, авитаминоз, гиповитаминоз, иммунитет, колит, антиоксидант, аллергия, атеросклероз.*

Key words: *juglans regia l, vitamin deficiency, hypovitaminosis, immunity, colitis, antioxidant, allergy, atherosclerosis.*

INTRODUCTION

In the decision of the President of the Republic of Uzbekistan dated April 10, 2020 "On additional measures for the development of folk medicine in the Republic of Uzbekistan" PQ 4668, folk medicine is recognized as an additional method of providing medical assistance to the population was shown. Also, the specialty "Folk medicine" was included among the 40 specialties in the system of medical sciences in the world. Large-scale reforms aimed at the development of folk medicine were carried out in the health care system, and scientific and practical work was launched on the basis of a number of normative documents [1,2].

It is known that since ancient times, people have been using the blessings of nature to treat patients from various diseases. Medical knowledge emerged and developed. During such a long

period of time, new methods and branches of folk medicine were created through the use of medicinal products made from plant and animal products and minerals in the treatment of diseases [3].

Among other biologically active substances, vitamins also have their place in medicine. Their absence (avitaminosis) and deficiency (hypovitaminosis) cause other diseases. Group B and C vitamins perform functions such as metabolism control, immunity enhancement, and coenzyme [8].

The purpose of the study. Based on the study of the chemical composition of the leaf of the Juglans regia L plant, to create a natural remedy for the treatment of certain diseases in folk medicine, to analyze its chemical, including vitamin content.

Relevance of the topic and analysis of the literature

The advantages of using folk medicine methods and tools instead of chemical substances sold in pharmacies are known to everyone, including the absence of side effects and rapid elimination from the body. Also, natural products contain complex substances, including vitamins, macro- and microelements, and enzymes, which ensure the absorption and effect of drugs on the body. From this point of view, studying the chemical composition and medicinal properties of walnut leaves and creating natural remedies based on them is one of the urgent issues of today.

Walnut (Juglans regia L) is a monoecious, single-sexed, wind-pollinated perennial tree. It grows in countries with a warm climate, including Central Asia, Moldavia, Crimea, Transcaucasia, and the North Caucasus, and its wild varieties grow in the mountains of Central Asia and the Caucasus [9,6].

The medicinal properties of walnut leaves for humans are no less than the core. Its leaves contain ascorbic acid, flavonoids, carotene and glycosides, which are not found in other medicinal natural remedies. A decoction of the leaves can be used for sore throat, strengthening the gums and urination, as well as treating urinary tract diseases [4,5].

In addition, walnut leaves contain quinones, C and B vitamins, astringent substances, caffeic acid, carotenoids, essential oils, flavoxanthin, violaxanthin and other substances, which can be used for healing wounds, against germs and colds, as well as for the treatment of diabetes. shows [4,5,10].

N.I.Zimenkina conducted pharmacognostic studies on three species of walnuts, Juglans regia L (walnut), Juglans nigra L (black walnut) and Juglans cinerea L (gray walnut), belonging to the genus Juglans L. conducted [11].

R.A. Yenikeeva studied in detail the biologically active substances contained in Juglans regia L (walnut), as well as the amount of ash in wet and dry leaves [12].

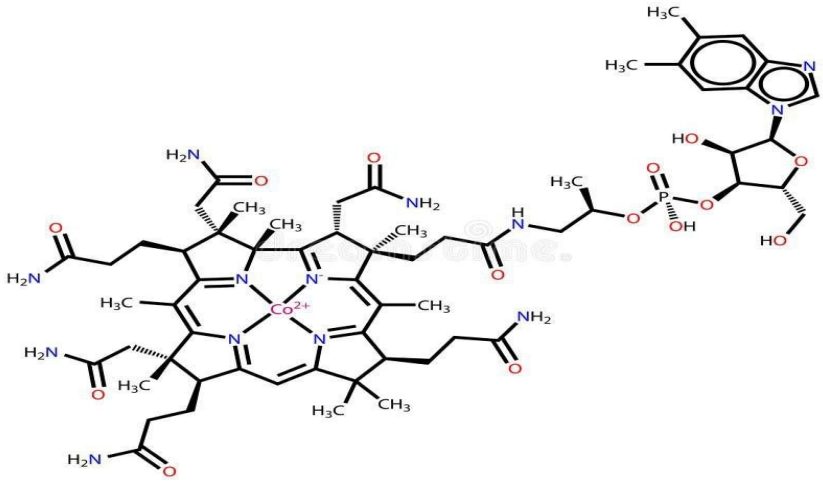
Since ancient times, people have used walnut leaves as a healing agent. Tincture made from walnut leaves is used in the treatment of rickets and diabetes in children, as an anthelmintic, in angina (inflammation of the tonsils) and gingivitis (inflammation of the mucous membrane of the gums), and as a mouth and throat rinse [14]. Walnut leaf is an excellent healing tool for quick and active treatment of various skin diseases. It can be recommended to take a separate bath with a decoction of dried leaves of walnut in such a complex case as the treatment of eczema and eczema on its leaves.

To prepare it, pour 1 liter of boiling water over 300 grams of dried walnut leaves, boil for 20 minutes, and then let it rest for 3-4 hours. The drug is passed through gauze and used for its intended purpose. Walnut leaves contain ascorbic acid, flavonoids, carotene and glycosides, which are not found in other natural medicinal products. A decoction of the leaves has the property of strengthening the gums and removing colds in the throat. In addition, the decoction of the leaves has diuretic properties, which is why it is widely used in the treatment of urinary tract diseases. [15].

Vitamin B9 (Folic acid) is necessary for normal growth and development, especially during pregnancy. Folic acid is responsible not only for the formation of new cells, but also for their maintenance. It relieves the mother from depression, regulates her emotions and psycho-emotional state in stressful situations. Vitamin B9 also strengthens the immune system and the cardiovascular system, increases the mobility of leukocytes and their ability to resist external viruses. It also accelerates the synthesis of useful amino acids and enzymes that help the liver and

stomach digest food. Folic acid deficiency leads to anemia, impaired tissue regeneration, reduced fertility (repeated abortion, premature birth, etc.) [12,13].

A lack of vitamin B12 in the body, a decrease in its intake, first of all, in a number of diseases, helminthic invasions and dysbacteriosis, digestive insufficiency due to its deficiency leads to the development of B deficiency anemia. In Russia, vitamin B12, like other B vitamins, is prescribed for any neurological condition, regardless of etiology, contrary to modern scientific data.



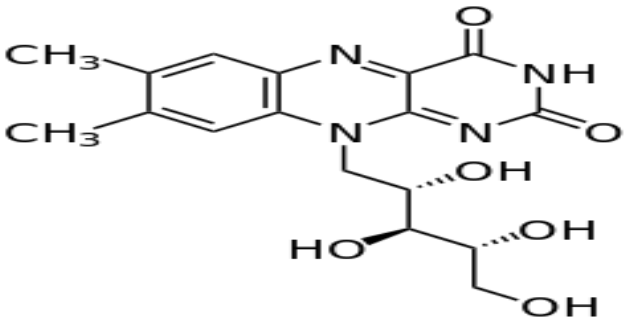
Structural formula of vitamin B12

It is desirable that the daily norm of intake of vitamin B12 for the human body should be as follows, that is, up to 6 months - 0.4 μg; under one year old-0.5 mcg; Under 3 years old - 0.9 μg; up to 8 years - 1.2 μg; up to 13 years - 1.8 μg; over 14 years old - 2.4 μg; pregnant and lactating women - 2.6-2.8 μg [14,19].

Vitamin B_{12} is mainly found in beef, chicken fillet, liver and kidneys, seafood - molluscs, fish, salmon, dairy products - milk, yogurt, cheese and eggs.

Vitamin B_2 (Riboflavin or Vitamin G) is very important for skin balance, enzyme metabolism, eyes, nerve cells, etc. Its chemical formula- $C_{17}H_{20}N_4O_6$

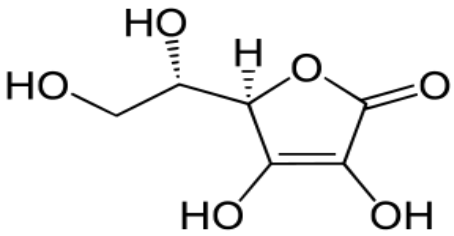
Naming according to IYuPAK 7, 8-Dimethyl-10-[(2S,3S,4R)-2,3,4,5-tetrahydroxypentyl]benzo[g]pteridine-2,4-dione, structural formula is as follows;



Vitamin B_2 (Riboflavin or Vitamin G)

The main function of vitamin B2 is to ensure the normal functioning of the thyroid gland, participation in all metabolic processes, maintenance of healthy skin and hair, improvement of eyes, skin, nervous and immune systems, energy production, cell growth and development. important for Protein participates in the metabolism of fats and carbohydrates in the body. It also participates in the metabolism of the eyeball. Its deficiency in the body causes damage to the tongue, lips and face, cataract, sclerocornic inflammation, anemia, stomatitis, facial seborrheic dermatitis[17,18].

Vitamin C (Ascorbic acid). Chemical formula- $C_6H_8O_6$



Vitamin C (ascorbic acid) structural formula

Ascorbic acid is necessary for the formation of collagen in cells, it has the property of strengthening the structure of teeth, bones and capillary walls. It participates in oxidation-reduction reactions, tyrosine metabolism, conversion of folic acid to folinic acid, carbohydrate metabolism, lipid and protein synthesis, iron metabolism, cellular respiration, activates the synthesis of steroid hormones, increases the body's resistance to infections. It has antioxidant properties, protects the cells and tissues of internal organs from damage, regulates blood clotting, strengthens the blood vessel wall, has an anti-inflammatory effect, reduces the body's sensitivity to allergens, strengthens the immune system, supports high nervous activity. - strengthens, participates in the breakdown of fats, accelerates tissue regeneration processes [18,19].

The time, place and research methodology of the experiment: the amount of total water-soluble vitamins in Juglans regia L was determined in the laboratory of the Institute of Bioorganic Chemistry under the FA of the Republic of Uzbekistan using the Agilent Technologies 1200 column Exlipse XDB C18 liquid chromatography method (11.09.2023). Phosphorous, acetate buffer systems and acetonitrile were used as eluents in the literature for the determination of water-soluble vitamins with the YuSSX. We used an acetate buffer system and acetonitrile.

RESULTS AND DISCUSSION

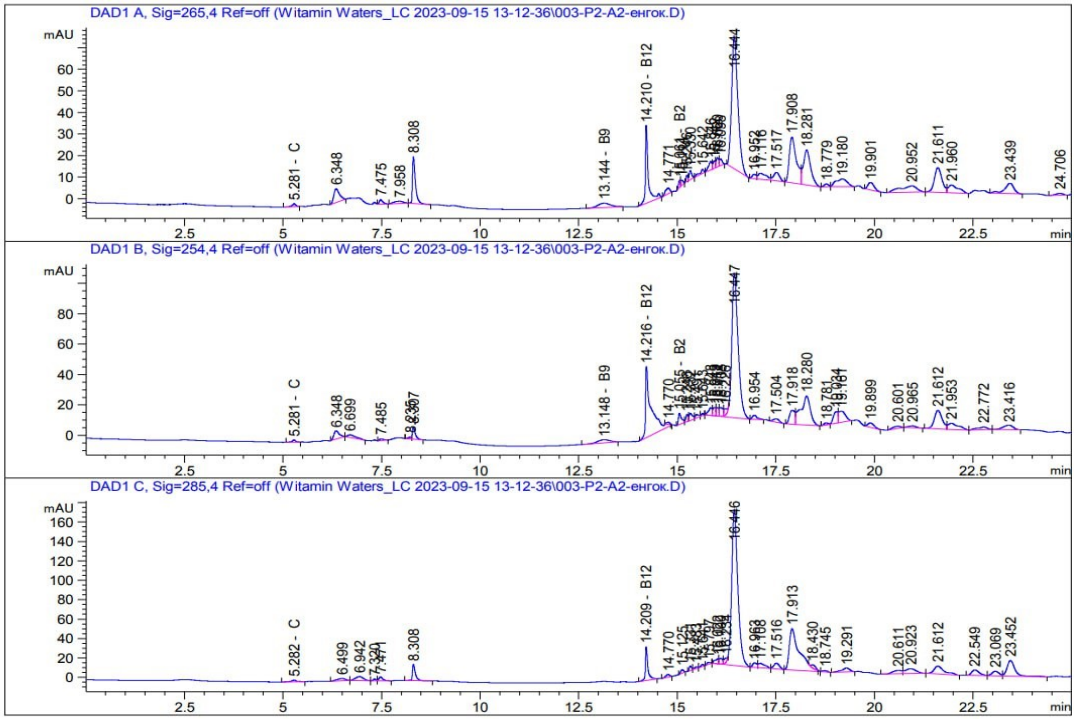
The following results were obtained when water-soluble vitamins in Juglans regia L were determined by Agilent Technologies 1200 column Exlipse XDB C18 liquid chromatography (table 1).

Vitamins in Juglans regia L

Table 1

Vitamin	Walnut leaf
	Concentration mg/g
B_{12}	2,271
B_2	1,764
B_9	0,904
C	0,612

Picture 1



When analyzing the water-soluble vitamins in Juglans regia L (**Picture 1)**, several vitamins belonging to group B were found, including the highest amount, 2,271 mg of B12; It was found that 1,764 mg of B2, 0,904 mg of B9, and 0,612 mg of vitamin C are present. The results of chromatographic analysis showed that walnut leaves do not contain B1, B6, PP vitamins. Consequently, walnut leaves contain B9, which increases immunity in the body's vital activity, is of great importance in growth and development, and ensures the normal functioning of the thyroid gland; A large amount of vitamins B2, V12, which are important for participating in all metabolic processes, maintaining healthy skin and hair, maintaining eyes, skin, nervous and immune systems, energy production, cell growth and development is important.

CONCLUSIONS

1. In folk medicine, walnut leaves and fruits have been used for the treatment of various diseases since ancient times.

2. The simultaneous presence of complex acting substances in the composition of natural medicines increases the effectiveness of treatment.

3. The presence of group B vitamins in the walnut leaf, especially the large amount of vitamin B12, indicates that it can be used in folk medicine for the treatment of anemia, decreased immunity, skin diseases, tumor diseases, and diseases related to the fetus.

- Spectrometric analysis results revealed the presence of more than 20 elements in Juglans regia L (walnut);

- due to the relatively large amount of elements such as calcium (98,533mg), potassium (37,594mg) and magnesium (34,796mg) among macroelements, it suggests the creation of new food supplements for some skin diseases.

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